

**INFRARED EVALUATION FOR TOTAL PETROLEUM HYDROCARBON (TPH)
IN SOIL USING PORTABLE DETECTION EQUIPMENT AT PETROBRAS E&P**

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The rehabilitation of contaminated sites requires a detailed knowledge on the distribution and pathways of chemical contaminants by which can reach environmental and human targets. The main objective of this field survey was to validate an optimization of TPH (Total Petroleum Hydrocarbon) analysis methodology for 740 contaminated soil samples using infrared detection technique using Infracal TOG/TPH equipment.

The results confirmed the extent of contamination of an old pit used for waste discharge from past oil extraction practices. Previous characterization of the area was conducted using geophysical and geochemical methods in a defensible sampling scheme in order to obtain best quality data. Most of the hydrocarbons present in the site corresponded to C11–C21 aliphatic compounds and alkyl polycyclic aromatic hydrocarbons (PAHs). TPH were determined within the range of zero to 10.000 ppm in order to establish the volume of contaminated soil to be removed and treated.

Test control was undertaken in 30 random samples using GC/ FID Method of Analysis for TPH and the results suggested the methodology performance is satisfactory for this application, providing a major improvement for effective environmental decision trough quality data to support protective measures. Benefits also include great reduction in program and compliance timeframes and costs by focusing on site-specific decision needs and utilization of best sampling approach, analytical, and decision tools and strategies to meet those needs.

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